Cryomodule Comments

With thanks to the leaders and participants of this meeting for their efforts, creativity and hospitality:

Oct. 7, 2005, FNAL SMTF Meeting

Nobu Toge (KEK)

STF at KEK (1)

- We maintain and promote collaborative relationship with groups ~ FNAL/STF, ~DESY/TTF and Asian institutes;
  - but STF is more like a “study group” centered around KEK rather than a full-fledged collaboration.
  - i.e. we intend it to be a seed for the Asian regional technology base under GDE, eventually.
- Two-phased approach:
  - Phase-1 : 5MW RF source x 2 + one 8-cavity cryomodule + one electron source and associated equipment
  - Phase-2 : Phase-1 HW, plus ILC-like (whatever it means) cryomodules x 2 (or 3 maximum) + 10MW RF source unit

ILC-Asia 2004-06 Report said

in December, 2004

http://lcdev.kek.jp/ILCAsiaNotes/2004/ILCAsia2004-06.pdf

- **"STF Phase 2:** Phase 2 of STF is being scheduled in JFY2007 to 2009. What we are now thinking of as Phase 2 is:
  - Three cryostats, each containing 12 cavities of 35MV/m (or 45MV/m if its development is successful).
  - Associated reinforcement of the RF power and refrigeration systems.
  - Systematic test of all the systems with the beam."
- "As of this writing (Dec., 2004), with the GDI yet to be launched, it is difficult to present a concrete plan of STF at this stage (phase-2) of development, nor is adequate to do so, since the coordination of international tasks by the GDI will be functional by the time to design Phase 2 in detail. In any case, nevertheless, tests with a few long cryomodules with a beam will be necessary somewhere in the world for the completion of the TDR."

As of now, Fall, 2005, the fundamental spirit at KEK towards STF Phase-2 remains the same. However, practical details of the technical contents and schedule are under continued discussion.

Toge's Personal Thoughts 1

(Note: No prior reviews have been given by the colleagues back home)

- It will be adequate for world experts, to start serious international discussion in late 2005-early 2006, for the next-stage ILC cryomodule development.
- The world experts are likely to be ready to start international design work in 2006, intensity that in 2007, and move on the construction, assembly and testing following these.
- Important prerequisite for these are, in my view,:
  - Both Asian and NA teams to have their "feet wet enough" through the present-stage (2005-2006) cryomodule work, and
  - We figure out, understand and institutionalize the ILC collaboration framework under GDE.

Toge's Personal Thoughts 2

(Note: No prior reviews have been given by the colleagues back home)

Here is a question:

- Cryomodule to put forward in BCD.
  - Present baseline scheme
- Cryomodule to work on in RDR.
  - To be the basis of initial cost studies
- Cryomodule to develop in 2006-7-8
  - for "Generation-4", next-stage SMTF, STF phase-2
- Cryomodule to actually use at ILC.

- What are they, after all? How are they similar or different? We have to clarify their definitions (both technically and other); and share the understanding of their implications. For instance, what it meas to do the RDR costing of modules which won't be used at ILC as they are, in the political sense and technical sense.
  - We have to develop an understanding and agreement around the time of Frascati, December, 2005, or Bangalore, March, 2006, or maybe later (?)

- If so, need to lay out the tasks for the key players to perform between now and Winter 2005 – Spring 2006.

Toge's Personal Thoughts 3

(Note: No prior reviews have been given by the colleagues back home)

- Tasks:
  - Organizers/participants of this mtg: articulate the potential significance of Dec/March mtgs to the lab + GDE management(s).
  - Lab mgmnt + GDE: Must figure out what to accomplish at/after BCD towards RDR and beyond, with "proper" technical understanding of issues that the engineering + scientists are facing.
  - Towards Winter 2005 ~ Spring 2006: Engineering and scientists in the world should:
    - Re-review the Snowmass-2005 WG reports and the draft BCD and check if we actually can really agree, make inputs to GDE, etc
    - Develop straw-man proto-designs of what may be the cryomodules to build at various stages of development.
    - Try to give answers to Qs in p.5.